ALTERING THE FLEXIBILITY OF A DISPLAY DEVICE

BACKGROUND

Display devices are advancing in functionality. For example, touch technology may allow a display device to be used for both displaying information to a user and receiving user input. As user input options to display devices increase, it is desirable to have advances in physical configurations of display devices as well.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings which provide examples of the invention, like numerals refer to like components or blocks. The drawings provide example embodiments. The following detailed description references the drawings, wherein:

FIG. **1** is a block diagram illustrating one embodiment of a computing system.

FIG. **2** is a flow chart illustrating one embodiment of a method for altering the flexibility of a display device.

FIG. **3**A is a diagram illustrating one embodiment of a configuration of a display device.

FIG. **3**B is a diagram illustrating another embodiment of a configuration of a display device.

FIG. **3**C is a diagram illustrating another embodiment of a configuration of a display device.

FIG. **4**A is a diagram illustrating another embodiment of a configuration of a display device.

FIG. **4**B is a diagram illustrating another embodiment of a configuration of a display device.

FIG. **5**A is a diagram illustrating another embodiment of a configuration of a display device.

FIG. **5**B is a diagram illustrating another embodiment of a configuration of a display device.

FIG. **5**C is a diagram illustrating another embodiment of a configuration of a display device.

DETAILED DESCRIPTION

As display devices become more prominent aspects of electronic devices, it is desirable to create a display device that provides a user with more options to adjust the physical configuration of a display device. Display devices, such as touch screens, are often made from a rigid material which may prevent the display device from being bent or adjusted. In some cases, a display device is created from a flexible material such that the display device may be become more flexible or more rigid. For example, a display device may be placed in a more rigid state when in use and may be placed in a more flexible state to allow for greater portability. Such a display device, however, may involve the entire display being in a flexible or rigid state. As a result, the types of adjustable configurations for the display device may be limited.

In one embodiment, a display device is divided into multiple sections where each section may have a different level of flexibility, thereby, resulting in a display device with multiple adjustable positions. For example, practical applications include a display device configured as a laptop that may be folded in half where a middle point is flexible for folding, a top section is a rigid display, and a bottom section is a rigid touch keyboard. Another application includes a display device that may be adjusted to various sizes, for example, by having a section of it that is more flexible that may be folded away.

In one embodiment, a display device may be created from a flexible material, such as memory metal, that changes flexibility in response to changes in temperature. The temperature may be altered to different levels in different sections of a display device such that sections of the display device have different levels of flexibility from one another. For example, a display device may initially be in a rigid state, and the temperature of a section of the display device may be altered so that the section becomes more flexible than the rest of the display device. Controlling the flexibility of a display device using temperature alterations may in some cases allow the display device to be a single piece of material such that visible divisions are not created in the display device. As a result, images on the display device may appear continuous.

FIG. **1** is a block diagram illustrating one embodiment of a computing system **100**. The computing system **100** may be any suitable computing system. For example, the computing system **100** may be a notebook computer, touch screen computer, or a mobile phone. The computing system **100** may include, for example, a processor **104**, a circuit **106**, a display device **108**, and a machine-readable storage medium **114**.

The processor **104** may be any suitable processor, such as a central processing unit (CPU), a semiconductor-based microprocessor, or any other device suitable for retrieval and execution of instructions stored in the machine-readable storage medium **114**. In one embodiment, the computing system **100** includes logic instead of or in addition to the processor **104**. In one embodiment, the processor **104** is made from flexible components such that it may bent or adjusted along with the display device **108**.

The circuit **106** may be any suitable circuit. The circuit **106** may alter the temperature of the display device **108** or a section of the display device **108**, such as by sending an electric charge to the display device **108**. The circuit **106** may, for example, receive a signal from the processor **104** to instruct it to adjust the temperature of the display device **108**, such as an instruction to send an electric charge or refrain from sending an electric charge. In one embodiment, the computing system **100** includes a component to measure the temperature of the display device **108**, and the processor **104** may use the information about the temperature to determine whether to instruct the circuit **106** to alter the temperature of the display device **108**.

The display device **108** may be any suitable display device, such as a monitor, mobile phone, or touch screen computer. The display device **108** may include a display area, such as a Liquid Crystal Display (LCD). In some cases, other components of the computing system **100**, such as the processor **104**, the circuit **106**, and the machine-readable storage medium **114**, are included within the display device **108**, such as a slate touch screen computer or a mobile phone. In some implementations, the display device **108** may be separate from some of the other components of the computing system **100**, such as in some notebook or desktop computers. The processor **104**, machine-readable storage medium **114**, and the circuit **106** may be made of flexible components such that they are able to bend along with the display device **108**.

The display device **108** may be made from any suitable material. In one embodiment, the display device **108** is created from a shape memory metal that alters its flexibility in response to an alteration in temperature. Any suitable memory alloy may be used, such as copper-zinc-aluminum-nickel, copper-aluminum-nickel, or nickel-titanium.

The display device **108** may include multiple sections, such as a first section **110** and a second section **112**. In some cases, the first section **110** and the second section **112** may be connected. The first section **110** and the second section **112**